



2012 Coastal  
Master Plan

# Appendix F2

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## Nonstructural Implementation Strategy

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## 1.0 Introduction

The 2012 Coastal Master Plan defines a path forward for a sustainable coast by identifying ecosystem restoration and risk reduction projects, as well as priorities for implementation to ultimately achieve the State's goals. The master plan set targets for reducing flood risk for every area of the coast and recognized that these targets cannot be met through structural protection projects only. The 2012 Coastal Master Plan recognized that a comprehensive coast wide nonstructural program that utilizes both physical and programmatic measures must be employed. Physical measures include elevating residences as well as floodproofing residences and businesses. Programmatic measures include a wide range of actions, including addressing where and how land is developed. These nonstructural measures may be utilized as a primary line of defense or as a secondary line of defense. The following describes the differences and synergies between physical nonstructural projects and more programmatic measures and makes recommendations on how these nonstructural measures should be implemented to assist in achieving risk reduction goals across coastal Louisiana.

### 1.1 Background

The master plan evaluated structural and nonstructural projects for their ability to reduce storm related flood risk across the coast. Structural projects reduce risk by means of levees, floodwalls, locks, or other structures. Nonstructural projects reduce risk to the existing building inventory through measures such as floodproofing, elevating, acquiring, and relocating structures. Our analysis focused on the physical measures that could be included in the risk assessment model and evaluated alongside structural projects. Although the risk assessment model could not evaluate effects of programmatic measures, these measures are an essential component of any nonstructural program and support the implementation of nonstructural projects across the coast. Nonstructural programmatic measures focus on reducing flood risk to future building inventory through a range of activities including: public education, implementing ordinances and building codes with higher risk reduction standards, and preparing land use plans that integrate floodplain management concepts.

Traditionally, nonstructural projects have been voluntary in nature. This is the current case in Louisiana, where the Road Home Program and Hazard Mitigation Grant Program (HMGP) funds have been made available to eligible homeowners to elevate their homes or relocate. Buildings that are substantially damaged (50% or more) must conform to the latest building codes, including meeting the most recent flood elevation standards; however, elevation of existing undamaged or minimally damaged structures is not mandatory, nor is acquisition. According to the Office of Community Development's "Weekly Situation and Pipeline Report", dated November 01, 2011, the participation rate to date for elevation projects was approximately 30% of eligible homeowners. Participation rates are influenced by a variety of factors, and the lessons learned from the Road Home Program and both the Louisiana and national HMGP should be captured and referenced for future nonstructural project implementation.

Nonstructural physical and programmatic measures are traditionally implemented at the local level. Funding is typically provided by the Federal Emergency Management Agency (FEMA) through a state

agency to fund local mitigation projects. City, town, or parish governments prepare hazard mitigation plans and use federal funds to implement the local plan. This process, while effective on the local level, often lacks regional coordination. Prior to developing the 2012 Coastal Master Plan nonstructural strategy, local and state flood hazard mitigation plans were reviewed to understand local initiatives and data availability. In addition, planning efforts from other states (e.g., Mississippi Coastal Improvement Program (MsCIP) comprehensive plan) were reviewed to understand how others are developing and implementing nonstructural programs.

Although learning from other areas is valuable, any planning approach must be tailored to the area being targeted to be successful. To that end, a work group comprised of Framework Development Team members and Master Plan Delivery Team members was created (see Appendix H for a list of participants). The nonstructural working group helped guide the development of the nonstructural implementation strategy; providing valuable input into the planning process and insight into the concerns and issues with implementing nonstructural physical and programmatic measures in coastal Louisiana.

A variety of stakeholders are interested in the nonstructural implementation strategy. Government entities at all levels are involved in planning and implementation of nonstructural measures and planning. Universities and numerous nonprofit organizations also have an interest in nonstructural planning and implementation as do communities, neighborhoods, individual home owners, renters, and business owners. As we move forward, a new community focus group will be formally established. This focus group will work with CPRA in identifying issues, providing insight, and moving implementation forward. It is vital that both planning and implementation efforts consider the needs and resources of everyone who lives and works on the coast.

## **2.0 Nonstructural Program Components**

Effectively reducing storm flooding risk through nonstructural efforts requires implementation of both physical and programmatic measures. Implementation of a coast wide nonstructural program will typically include a combination of one or more physical measures such as: 1) floodproofing of residential and commercial properties, 2) elevation of residential properties, and 3) voluntary acquisitions of residential properties. In addition, programmatic measures such as land use planning, building codes, and education that can reduce risk to future buildings within communities will be integral to the nonstructural program.

### **2.1 Physical Measures**

Nonstructural physical measures consist of floodproofing, elevation, and acquisition of residential structures and floodproofing of nonresidential structures. The National Flood Insurance Program (NFIP) does not recognize residential floodproofing when determining flood insurance premiums and does not allow floodproofing of substantially damaged or substantially improved residential structures; otherwise floodproofing is an allowable and practical means for reducing flood damages and is included as a viable nonstructural measure. FEMA does recognize that floodproofing can be an

appropriate method for reducing risk to a historic structure where other techniques would damage the historic nature of the structure.

Implementation of nonstructural physical measures will require a design phase, just as structural and restoration projects. If federal funding is used, they must also meet NEPA requirements, as well as compliance with other legislation and regulations, such as the National Historic Preservation Act. Additionally, the final design of nonstructural physical measures will be based on detailed information regarding flood depths at individual structures, the structural suitability of that particular structure, the type of funding available, individual parish and municipal requirements and the willingness and ability of the owner to participate.

## 2.2 Programmatic Measures

As stated previously, effectively reducing risk through a nonstructural program requires implementation of both physical and programmatic measures. Physical projects reduce risk for the existing building inventory, while programmatic measures focus on reducing risk for the future building inventory. Programmatic measures can range from public education activities, to implementing ordinances and building codes with higher risk reduction standards, to preparing land use plans that integrate floodplain management concepts. An effective, comprehensive nonstructural strategy will include these measures and a variety of others.

The nonstructural working group described earlier in this document assisted with development of the nonstructural implementation strategy. This group met over a period of several months and determined that, at a minimum, a nonstructural implementation strategy should address the following items:

1. Land use planning
2. Land use ordinances
3. Hazard mitigation planning
4. Higher regulatory standards
5. Building codes
6. Flood insurance requirements
7. Public education

The 2012 Coastal Master Plan's nonstructural implementation strategy is intended to address these programs and recommend an initial course of action. While the master plan offers guidance and recommendations for nonstructural program implementation, it does not address specific structures or constitute a comprehensive implementation program. The master plan recognizes that many obstacles to implementation of a coast wide nonstructural program exist, and that further coordination with state agencies, local governments, the new community focus group and affected individuals is critical to fully developing and implementing a successful nonstructural program.

### 3.0 Nonstructural Program Implementation

A comprehensive nonstructural risk reduction strategy consists of two distinct but closely related components: 1) physical measures and 2) programmatic measures. Although implementation of these two components can proceed separately, a more effective strategy is to implement elements of both simultaneously. To promote implementation of nonstructural measures at the local level, it may also be appropriate to link implementation of these measures to implementation of other risk reduction projects.

The following sections discuss the implementation of the nonstructural program. Recommendations for implementation are presented in italics in each section and there is a summary of recommendations located at the end of the document.

#### 3.1 Implementation of Physical Measures

Funding for nonstructural projects is generally disbursed by FEMA through the state to local jurisdictions for project implementation. HUD's Community Development Block Grant (CDBG) Program, through both its State Administered CDBG and its Disaster Recovery Assistance programs, also has played a significant role. In Louisiana, federal project funding has been provided to the Office of Community Development for implementation for those directly impacted by Hurricanes Katrina and Rita (Road Home Program) and also for Hurricanes Gustav and Ike. Other state agencies are also involved in hazard mitigation activities, including the Department of Transportation and Development (National Flood Insurance Program), Governor's Office of Homeland Security and Emergency Preparedness (disaster response and recovery), and Coastal Protection and Restoration Authority (2012 Coastal Master Plan and recently a Cooperating Technical Partner with FEMA). In addition, multiple universities and nonprofit organizations have on-going nonstructural mitigation outreach activities, often funded by various public and private grants and partnerships.

*It is recommended that a single entity be responsible for coordinating all hazard mitigation activities including: hazard risk assessment, hazard mitigation planning, and project implementation.*

The master plan does not address risk to personal safety; hurricane evacuation planning is prepared and implemented by the Louisiana State Police and Department of Transportation and Development.

*It is recommended that nonstructural projects be implemented in coordination with other community resilience, development, and economic plans along with emergency response and evacuation plans to ensure that projects are considered and evaluated as a whole to maximize limited resources and the synergies of each plan.*

#### 3.2 Implementation of Programmatic Measures

Nonstructural risk reduction physical measures address the existing building inventory. The intent of nonstructural programmatic measures is to minimize risk to new structures being built. Programs may include measures such as flood damage prevention ordinances, land use ordinances, building standards and codes, land use and hazard mitigation planning, flood insurance, and public education.

Although nonstructural programmatic measures were not evaluated in the Planning Tool, the master plan recognizes the importance of such measures to the success of reducing risk in the coastal area of Louisiana. The following sections discuss several nonstructural programmatic measure and issues and recommendations regarding the implementation. Section 4 – Summary of Recommendations contains an abbreviated compilation of the recommendations.

### 3.3 Implementation Recommendations

#### 3.3.1 Programmatic Recommendations

**Land Use Planning:** Land use planning determines where and how people should develop and redevelop land. Effective land use plans can direct development away from high hazard areas and help preserve the natural functions of floodplains and other critical areas. Land use planning is an essential ingredient in reducing flood risk to future building inventory.

In Louisiana, comprehensive land use plans are required of parishes and cities that have a planning commission; however, not every coastal parish and community has developed a land use plan or has an up to date plan. Land use planning requires an investment of resources, personnel and funding. The community must engage someone to develop the initial plan, approve and adopt the plan, enforce the requirements of the plan, and revise the plan over the course of time. Effective land use plans also require support from citizens. A number of grant programs have been made available for those parishes desiring to create or update land use plans.

*Because many parishes do not have the resources to develop, implement, and maintain land use plans, it is recommended that the State continue to identify ways to support increased capacity for land use planning at the local level, understanding that some parishes have fewer resources to sustain these efforts and may require additional incentives.*

*For the sake of consistency among planning efforts and with the master plan, some oversight may be required by the State.*

As more parishes and communities engage in planning activities, it is important that risk reduction be considered.

*It is therefore recommended that future planning grants require that all land use plans contain a section specifically addressing flood risk reduction measures that are in keeping with the master plan.*

**Redevelopment Planning:** Several of the five gulf states are now considering not only traditional land use planning as a nonstructural measure, but also redevelopment planning. Redevelopment plans set a course of action for where and how to rebuild after a disaster. This process should also be considered in coastal Louisiana planning efforts.

**Hazard Mitigation Planning:** A number of existing federal, state and local hazard mitigation plans are currently in place throughout the State, including the coastal area such as the “State Hazard Mitigation Plan” and the “Louisiana Citizen Awareness and Disaster Evacuation Guide” developed by the Governor’s Office of Homeland Security and Emergency Preparedness (GOHSEP). Local Flood

Mitigation Assistance (FMA) plans have been prepared for communities including, but not limited to, Jefferson Parish, Vermilion Parish, and Terrebonne Parish. These plans contain nonstructural flood mitigation measures and require annual updating and are typically rewritten every five (5) years. Well formulated hazard mitigation plans provide an orderly roadmap for implementing both structural and nonstructural projects and programs. It is important for these plans to be regularly updated.

*It is recommended that communities have up-to-date, FEMA and master plan compliant hazard mitigation plans in place prior to receiving funding for structural and/or nonstructural projects.*

**Higher Regulatory Standards:** The National Flood Insurance Program (NFIP) requires participating communities to develop a flood damage prevention ordinance that meets the minimum requirements of the NFIP. Participating communities are, however, encouraged to adopt ordinances that contain higher regulatory standards. Communities that participate in the Community Rating System (CRS) may also receive additional points towards premium reductions for adopting higher standards. Both Jefferson Parish and Terrebonne Parish have recently received CRS ratings of 6 for their unincorporated areas resulting in a discount of 20% on flood insurance policies.

*It is recommended that communities should be encouraged to adopt higher regulatory standards such as increased freeboard, additional levels of protection for structures behind levees, or cumulative substantial damage tracking requirements.*

**Building Codes:** In 2005 the State of Louisiana enacted Act 12 of the First Extraordinary Session to provide for a state uniform construction code. The code establishes minimum construction standards for new construction and reconstruction. The Louisiana State Uniform Construction Code Council was created to determine if amendments to the state uniform code are justified, to review and adopt changes to the code as appropriate, and to provide training, education and certification to local code enforcement officers, inspectors, third party providers and building officials.

The Louisiana State Uniform Construction Code Council updated the various construction codes in the State in 2010 by adopting the most recent (2009) editions with certain deletions and amendments of the International Building Code (IBC), International Existing Building Code (IEBC), International Residential Code (IRC), International Mechanical Code (IMC) and International Fuel Gas Code (IFGS). These updated codes were effective January 2011. The State previously adopted the most recent (2008) edition of the National Electric Code. The 2009 "I" codes, now in effect in Louisiana, through the State Uniform Construction Code, have many cases of higher standards or more specific standards than the NFIP requirements.

*It is recommended that the Louisiana State Uniform Construction Code Council continue to maintain existing standards and, based on the potential for increasing risk, consider new higher standards related to hurricane and flood protection in the State's Uniform Construction Code.*

**Education:** Educating the general public, businesses, organizations, and local decision makers regarding their existing and future risks and the risk reduction effectiveness of nonstructural programs can help with effective implementation. Outreach aimed at explaining the benefits of nonstructural programs and the implementation process are needed. Local decision makers should also be



educated on the benefits of nonstructural programs and opportunities to obtain funding for nonstructural projects.

**Flood Insurance:** The Flood Insurance Agency (FIA), a branch of FEMA, requires participation in the NFIP before making federal flood insurance available to residents, businesses, churches, and others in that community. A common misconception is that flood insurance is only available to those in the floodplain. When a community enrolls in the NFIP, flood insurance becomes available to almost all, whether owner or renter, regardless of the location of their structure with respect to the floodplain.

All federally backed mortgages for structures built in a floodplain must have a flood insurance policy in place on the mortgaged structure. If a structure is located in the floodplain and the mortgagee fails to purchase flood insurance, it is incumbent on the bank to “force place” a policy. These requirements are not applicable to homes without a mortgage, homes without a federally backed mortgage, or homes built outside of the floodplain.

Flood insurance limits the personal financial losses of those impacted by a flood. Additionally, flood insurance allows individuals to accept some responsibility for protecting themselves from the flood hazard. For residents living in an NFIP participating community, failing to purchase flood insurance may be a financial decision (i.e., cannot afford the annual premium), a lack of adequate auditing of mortgages by the bank, or lack of understanding of the importance of flood insurance by the structure owner or renter. It is recognized that FEMA currently runs an ad campaign regarding flood insurance, but a program focused on the specific issues of coastal Louisiana may be more effective.

*It is recommended that the public education program on the importance of flood insurance be continued, potentially focusing on Louisiana-specific issues.*

### 3.3.2 Obstacles to Implementation

The FDT Nonstructural Work Group noted that the master plan should highlight potential issues such as; “the disparity of resources between parishes”, “coordination among various levels of government and non-governmental agencies”, and “useful linking of projects and programs” (e.g., withholding project money if certain local nonstructural risk reduction programs are not in place). These potential obstacles to plan implementation are discussed below.

**Lack of Resources and Tools:** In addition to requiring assistance with funding and technical resources, communities need other resources to implement a successful nonstructural program. Planning guides, model ordinances, accurate digital mapping, and access to computerized data sources are necessary tools for effective floodplain management that may not be adequately available in all coastal jurisdictions.

The Coastal Protection and Restoration Authority (CPRA) and the Center for Planning Excellence (CPEX) through a cooperative endeavor agreement developed a “Best Practices Manual for Development in Coastal Louisiana” aimed at providing guidance to parishes and communities wishing to incorporate the concepts of resilience and sustainability into their land use planning. The manual provides planning concepts and tools, recommendations for land development practices, and

implementation strategies. Through this same project, model ordinances for use by coastal parishes and communities have been developed as part of a Coastal Land Use Toolkit. Continued support of these, and similar efforts, is important to successful implementation of a comprehensive nonstructural program.

The Louisiana State University (LSU) Civil & Environmental Engineering Department has established a “Research Group for Water Environment Sustainability” that focuses, in part, on Low Impact Development (LID) practices. Additionally, Light Imprint (LI) practices show promise, particularly in smaller communities and communities encouraging “smart growth”. Both of these practices reduce stormwater runoff and can have an impact on future flooding levels as well as community resilience and quality of life. These efforts and similar efforts can supplement on-going state efforts.

*Non-governmental organizations and educational institutions should continue to be supported in developing a variety of tools and documents related to proper floodplain management and flood risk reduction.*

Flood damage prevention ordinances that meet or exceed the minimum standards of the NFIP are currently in place in all coastal parishes; however, parishes may not have updated Digital Flood Insurance Rate Maps (DFIRMs) with final effective Base Flood Elevations (BFEs). As parishes adopt the latest DFIRMs and BFEs, new work will be required periodically to assure the latest land elevations and benchmarks, along with storm surge modeling and other relevant information of Louisiana’s dynamic coast are incorporated.

The CPRA has recently been identified as a Cooperating Technical Partner (CTP) with FEMA. As a CTP, the State will enter into agreements regarding the development of Flood Insurance Rate Maps and risk reduction actions. These agreements will define the role of both the CPRA and FEMA and should allow the State more input on data utilized to develop Flood Insurance Rate Maps in coastal Louisiana. Accurate Flood Insurance Rate Maps are critical to proper floodplain management.

*The State’s CTP status with FEMA should be utilized to actively engage in the development of accurate Flood Insurance Rate Maps.*

**Varying Levels of Needs and Resources among Jurisdictions:** Each parish and/or community has unique needs and limited resources and capabilities. Each local government is also responsible for applying those resources to the highest priority areas. To require that certain nonstructural programmatic measures be in place prior to receiving funding for structural and nonstructural physical measures presents a number of challenges for those parishes/communities.

1. Projects that span multiple jurisdictions – Structural projects may cross multiple jurisdictions in order to be effective. One jurisdiction that is unwilling or unable to comply with the program requirement may impact the project for other jurisdictions.
2. Jurisdictions that cannot afford program implementation – Some jurisdictions may simply not have the financial resources to implement a required programmatic measure.

3. Lack of properly trained resources – Communities with nonstructural programs that contain a plan review and/or inspection component may not have staff that are properly trained or certified to perform those functions.
4. Appropriateness of programs – Requiring certain programmatic measures or regulatory standards (e.g., additional freeboard) may be entirely appropriate in some jurisdictions and may provide additional damage reduction over time. In some jurisdictions, however, this may not be the case. Requiring that a single standard or program be applied coast wide may not be appropriate, rather a regionally based set of standards, taking into account Louisiana’s unique landscape, may be more appropriate.

Requiring implementation of certain nonstructural programmatic measures to coincide with implementation of structural and nonstructural projects should be considered. Decisions must be made carefully; however, to match the capabilities and needs of the parish or community to the required programs and the flexibility of those programs. Consideration should also be given to providing assistance (funding, technical assistance, training, etc.) particularly to those jurisdictions that do not otherwise have the resources to comply. Finally, as the State moves forward with developing required nonstructural programs, the benefit and cost of those programs to each jurisdiction must be carefully weighed.

**Lack of Understanding Regarding Different Funding Sources:** Multiple traditional funding streams are available for nonstructural projects such as FEMA’s HMGP. Other sources of funding may also become available for use during nonstructural program implementation. Each funding source has its own unique funding cycle, application process, eligibility, and implementation requirements.

It is difficult, at best, for local officials to track each of these sources and for them to recognize when they have a project that meets the grant criteria, and allocate limited staff resources to prepare the application package. Consequently, when an appropriate funding source is matched with a program or project, the funding is seldom leveraged with other projects and programs taking place within the region. Most funding sources also require a local match. This requirement can be a “deal breaker” if the jurisdiction does not have adequate resources in reserve. Additionally, some funding sources do not have sufficient monies available on an annual basis to make significant progress in a timely fashion.

It is recommended that the State educate local officials on mitigation activity funding sources and cycles. In order to fully leverage mitigation grant programs, local jurisdictions should consider a budget item for hazard mitigation project planning and implementation and identify specific projects and potential funding sources in their local hazard mitigation plans.

Creating a clearinghouse to direct jurisdictions to appropriate funding sources and to identify opportunities to leverage funding by one jurisdiction in collaboration with another jurisdiction should be considered.

**Lack of Adequate Enforcement of Programs and Policies:** Any program can experience problems delivering consistent and adequate enforcement. When programs span multiple jurisdictions it is also important to have equal enforcement across jurisdictional lines.

Even with vigorous enforcement policies, it is critical to have well trained and experienced inspectors, contractors, and service providers. Especially during times of disaster, “fly by night” companies abound and take advantage of a vulnerable public. Training, certifying, and listing “approved” contractors can reduce the number of unscrupulous companies.

On August 19th, 2011, Governor Jindal issued an executive order outlining new consumer protection standards for the HMGP. These new standards are being implemented through the state licensing board for contractors and are targeting those contractors that use unsafe construction practices and that provide “shoddy” work.

To facilitate consistent and adequate enforcement of building codes, flood damage prevention ordinance requirements, land use planning policies and other programmatic regulations, providing additional assistance to parishes and communities related to training and certification of reviewers, inspectors, and permitting authorities should be considered. Providing additional training and certification opportunities to building contractors regarding proper floodproofing and elevation techniques and methods should also be considered. In some instances, it may be necessary and appropriate to require certification by the State prior to being allowed to conduct business within the State (e.g. home elevation companies).

**Need for Regulatory Changes:** Typically, nonstructural measures are implemented at the local level and on a voluntary basis. Parishes and communities identify certain nonstructural projects through a hazard mitigation planning process, seek funding from FEMA or another federal agency for the project, then provide that funding to qualified home and business owners for implementation. Home and business owners are generally not required to participate in the project. The exception to voluntary participation occurs when a home has been substantially damaged (i.e., damage exceeds fifty percent (50%) of the fair market value of the structure). In such instances, the repair of the structure must include bringing the structure into compliance with the most recent elevation requirements of the local ordinance.

The State also provides assistance in the construction of structural risk reduction projects such as levees. These projects have not, in the past, required that communities have nonstructural risk reduction projects in place as a requisite for funding.

As discussed previously, force placement of flood insurance is typically required only for mortgages backed by the federal government. Properties that use HMGP funding to elevate are also required to maintain flood insurance for the life of the structure following the completion of the mitigation activity. This may still leave a large segment of the population living and doing business in a high risk area uninsured and with accompanying excessive financial risk.

Some nonstructural measures may be appropriate for implementation along with structural risk reduction projects.

Local governments should be encouraged to include appropriate nonstructural programs when implementing risk reduction projects.

**Induced Development:** Construction of structural risk reduction projects (e.g., levees) may encourage development into flood hazard areas. Risk reduction projects sometimes give a false sense of protection. If the residual risk associated with structural risk reduction projects are not considered in land use planning, development may gravitate to the risk reduction area rather than looking for a less hazardous area to build.

Limiting induced development in potential high risk areas during the risk reduction project planning, design, and implementation process should be considered. This recommendation may be accomplished through tools such as land use planning, creating stricter development standards for areas protected by levees, or maintaining pre-structural project flood damage prevention standards.

**Need for Greater Communication and Coordination:** Communication is a key element to any program implementation effort. Dialogue among stakeholders is essential, along with effective information flow from the State to local officials and vice versa. The general population is directly impacted by nonstructural projects and programs and should be well informed of potential changes.

Typically funding flows from the federal government to the states to local governments for specific projects. Programs may conflict and, at times, may not fund highest priority activities for the region. Lack of coordination of such funding can cause inefficiencies and lost opportunities to combine or leverage project funds to accomplish a greater goal.

As with most other states, Louisiana spreads the responsibility for floodplain management and hazard mitigation activities throughout a number of state and local agencies. Responsibility for coordinating hazard mitigation activities resides with the State Hazard Mitigation Officer (SHMO) located in GOHSEP. HMGP funding is also funneled through this office. The SHMO is responsible for statewide activities, not merely activities along the coast. The State Coordinator for the NFIP is located in DOTD. The Office of Community Development (OCD) is responsible for administration of the Road Home recovery program and other programs focused on reducing risk and developing community resilience. CPRA has recently become a Cooperating Technical Partner with FEMA to improve the quality of data that is used for flood mapping in coastal areas and to increase risk reduction actions.

A number of state agencies, academic institutions, non-governmental organizations, and local governments are actively engaged in research and developing projects to address risk reduction. However, no single entity coordinates or links these activities together.

As stated above, hazard mitigation responsibilities are shared among the State Hazard Mitigation Officer (GOHSEP), the State Coordinator for the NFIP, and the Office of Community Development (OCD). These three offices administer programs on behalf of FEMA including reviewing mitigation grant applications and administering funding for project implementation, generally at the parish and local level. Additionally, OCD administers funding to assist in disaster recovery provided through the Community Development Block Grant Program of Housing and Urban Development (HUD). In Mississippi, funding for nonstructural risk reduction projects has been provided by Congress to the

USACE through the Mississippi Coastal Improvement Plan (MsCIP) study and report. As the Corps continues work in Louisiana, it is possible that a similar funding action could be taken with the Corps as the administering agency. Other federal agencies such as the Environmental Protection Agency and the Federal Highway Administration offer grants that can be used to improve community resilience and reduce risk.

To assure a common vision informed by the master plan, an on-going forum among a variety of stakeholders, including state and local agencies responsible for hazard mitigation and community resilience, for discussion and exchange of information related to nonstructural mitigation coast wide should be supported. Utilizing the existing CPRA Board structure for coordinating all coastal hazard mitigation research, planning, and project funding should also be considered.

This forum would provide federal, state, local officials and others a single point of contact to learn about current and planned projects and potential funding sources. CPRA would also be responsible for connecting available funding with potential nonstructural programs and projects.

Since Hurricanes Katrina and Rita, Louisiana has embarked on a number of nonstructural programs and implemented a variety of nonstructural projects. It is recommended that a review of nonstructural activities implemented by OCD, GOHSEP, CPRA, and others be conducted for ‘lessons learned’.

### **3.3.3 Additional Recommendations for Implementation**

In addition to the recommendations discussed in the previous sections, the following issues were discussed during the formulation of the nonstructural implementation strategy.

1. Multiple challenges and complexities are associated with relocation and acquisition programs and such programs should involve extensive input from, and conversations with, the impacted community. Louisiana’s inheritance laws and cultural traditions can also create challenges and add complexity to federal processes that may not take into account these traditions. While a home may be individually owned, the land it is on may be family land not in the homeowner’s name. In other situations, there may be family cemeteries or property providing some income (agricultural) or access to income (waterfront) that is shared. Family and culture is deeply valued in Louisiana communities and many families count their years in a community by generations. In some cases, it may be more appropriate to relocate the entire community rather than selected individual structures. Input from the social sciences, as well as additional research, may be necessary to address the challenges facing community relocation and acquisition programs. It takes time to evaluate and determine what areas may need to be relocated, what the relocation plan will include, the level of funding required and the schedule for implementation. Potential relocation areas should be identified as quickly as practical and a dialogue with the impacted areas should begin early in the planning process and continue throughout the project. As mentioned previously, many gulf states are now considering not only traditional land use planning as a nonstructural measure, but also redevelopment planning. Redevelopment plans set a course of action for how to rebuild after a disaster and include relocation planning. Having

redevelopment plans in place prior to a disaster can help a community invest resources wisely, guide growth and respond quickly after a disaster.

2. Often, structural flood control measures significantly alter the natural environment and may induce development into otherwise hazardous areas. Consideration should be given to these issues when planning, designing, and constructing structural flood control projects.
3. It is important that the State consider additional incentives for implementing nonstructural programmatic and physical measures. Grants, technical assistance, and other resources should be made available to those parishes and communities desiring to plan, design, implement, and maintain nonstructural programs and projects.

## 4.0 Summary of Nonstructural Program Recommendations

The following is a compilation of recommendations from the previous sections. The recommendations have been grouped into four broad categories; 1) Regulatory actions, 2) Funding and Support Initiatives, 3) Education and Training Programs, and 4) Nonstructural Program Coordination and Communication. Several of the recommendations from the document are very similar and have been combined into a single recommendation below.

Following the list of recommendations is a discussion of the phasing or timing of implementation. It is important that certain components of the strategy be in place prior or in conjunction with project and program implementation. Finally, the Summary of Recommendations includes a discussion of how to measure the success of nonstructural projects and programs. The 2012 Coastal Master Plan is an adaptive management plan, so understanding how to measure incremental success of the plan is important to achieving the desired results.

### 1. Listing of recommendations

- a. **Nonstructural Program Coordination and Communication:** As in many States, Louisiana's nonstructural program planning and implementation is shared among a variety of state agencies. No other state; however, has a nonstructural program that is as comprehensive or of the magnitude described in the 2012 Coastal Master Plan. In order to effectively implement a nonstructural program of this nature, coordination of activities and communication among stakeholders is extremely important.

In fact, the first four recommendations in this category are very similar and point to the need for increased communication and enhanced coordination of nonstructural related activities. These recommendations call for a single entity to coordinate and act as a clearinghouse for all coastal nonstructural mitigation activities. This entity would also be responsible for effectively communicating with stakeholders and acting as a forum for discussion.

The CPRA Board membership includes the state agencies currently engaged in nonstructural program activities; DOTD, GOSHEP, and the Division of Administration –



Office of Community Development (OCD). A CPRA standing committee on nonstructural programs consisting of the previously mentioned members plus others could address the concerns for improved nonstructural program coordination and communication. Such a committee could develop a forum for discussion for stakeholders, coordinate nonstructural activities of the various agencies, direct communities to the appropriate funding sources, and leverage efforts of multiple agencies and communities. The “nonstructural” committee would report results directly to the full CPRA Board on a regular basis. This standing committee could be assigned to specifically address the recommendations below:

- i. A single state agency should be responsible for coordinating all hazard mitigation and community resilience activities including: hazard risk assessment, planning, research, and project implementation.
  - ii. Consider having a designated person(s) agency responsible for coordinating all coastal hazard mitigation and community resilience project funding.
  - iii. Consider creating a clearinghouse to direct jurisdictions to appropriate funding sources and to identify opportunities to leverage funding by one jurisdiction in collaboration with another jurisdiction.
  - iv. Support an on-going forum among a variety of stakeholders, including state and local agencies responsible for hazard mitigation and community resilience, for discussion and exchange of information related to nonstructural mitigation coast wide.
  - v. It is recommended that nonstructural projects be implemented in coordination with other community resilience, development, and economic plans along with emergency response, mitigation, and evacuation plans to ensure that projects are considered and evaluated as a whole to maximize limited resources and the synergies of each plan.
  - vi. Utilize its CTP status with FEMA to be actively engaged in the development of accurate Flood Insurance Rate Maps impacting coastal communities.
  - vii. Consider limiting induced development in potential high risk areas during the risk reduction project planning, design, and implementation process.
- b. **Regulatory Actions:** The nonstructural implementation strategy calls for consideration of amending various regulatory requirements to ensure that certain nonstructural goals are met. The items below identify four areas where regulations should be reviewed and amended, as appropriate; 1) local land use planning, 2) building codes, 3) flood damage prevention ordinances, and 4) risk reduction project funding.
- i. Future planning grants should require that all land use plans contain a section specifically addressing flood risk reduction measures.



- ii. The Louisiana State Uniform Construction Code Council should continue to maintain existing standards and consider new higher standards related to hurricane and flood protection in the State's Uniform Construction Code.
  - iii. Encourage communities to adopt higher regulatory standards such as increased freeboard or cumulative substantial damage tracking requirements.
  - iv. Consider requiring implementation of certain nonstructural programs to coincide with implementation of structural and nonstructural projects. Funding of other risk reduction projects may be tied to implementation of appropriate nonstructural measures.
- c. **Funding and Support Initiatives:** There are numerous local governments, educational institutions, and non-profit groups in Louisiana that are currently involved in developing and implementing nonstructural projects, programs, and tools and, in some cases, with financial support received from the State. It is essential that the State continue to identify the current needs and resources of coastal Louisiana residents, businesses, communities, and local government and encourage development of those tools and measures which address these identified needs and gaps. Continued support for these identified activities should be provided including financial support, as appropriate. The following set of recommendations call for state support of local land use planning, nonstructural program implementation, and nonstructural planning tools:
  - i. Identify ways to support increased capacity for land use planning at the local level, understanding that some parishes have fewer resources to sustain these efforts and may require additional incentives.
  - ii. Consider providing assistance (funding, technical assistance, training, etc.) to those jurisdictions that do not otherwise have the resources to comply with requirements for nonstructural program implementation associated with other risk reduction projects (See recommendation b.iv).
  - iii. Consider additional incentives for implementing nonstructural programs and projects. Grants, technical assistance, and other resources should be made available to those parishes and communities desiring to plan, design, implement, and maintain nonstructural programs and projects.
- d. **Education and Training Programs:** Education and training is a necessary ingredient to any program or initiative. Proper implementation requires training for those responsible for the program's success and education of the affected parties. The recommendations below are based on this need:
  - i. Support of the public education program on the importance of flood insurance should be continued.
  - ii. Local officials should be educated on mitigation activity funding sources and cycles.

- iii. Continued assistance should be provided to parishes and communities related to training and certification of reviewers, inspectors, and permitting authorities.
- iv. Additional training and certification opportunities should be provided to building contractors regarding proper floodproofing and elevation techniques and methods.

## 2. Order of Implementation

To effectively implement the nonstructural strategy certain aspects of the strategy should be implemented before other aspects. Other recommendations can be implemented at any point in the process without negatively affecting the strategy. The following paragraphs discuss a general order of implementation of the above recommendations.

Several of the recommendations reflect activities that are currently being administered by the State. These efforts should be continued and reviewed and assessed for success as appropriate. Recommendations related to on-going State efforts include; A.vi, B.ii, and D.iii.

Similar to on-going State efforts are the activities of local governments and non-governmental organizations (NGOs). Decisions should be made about which activities to support and to what level based on available funding and the potential for these activities to further the goals of the 2012 Coastal Master Plan. Support of activities conducted by local governments and NGOs are addressed in recommendations C.i, C.ii, and D.i.

It will be important for the State to quickly develop a framework from which to make decisions regarding nonstructural project and program implementation and to communicate efforts regarding implementation of the nonstructural strategy to the various stakeholders. Recommendations A.i, A.ii, A.iii, and A.iv address this issue.

The decision framework developed through the recommendations in the previous paragraph can be used to assess current regulatory policies and to refine and develop appropriate policy changes to address recommendations A.v, A.vii, B.i, B.iii, B.iv, and C.iii.

Education and training activities (recommendations D.ii and D.iv) should be on-going and will be necessary to inform stakeholders regarding project design and implementation, programmatic changes and policy and regulatory revisions developed through the implementation of this strategy.

The 2012 Coastal Master Plan identifies nonstructural projects across the coast for implementation. These projects may be funded by federal, state, or local sources. Additionally, projects may, or may not be, part of a local hazard mitigation plan. Projects developed and funded by federal and local sources should move forward provided they are not in conflict with the overall goals of the 2012 Coastal Master Plan. As a decision framework is developed for the nonstructural strategy implementation, appropriate State funding can be provided to

additional projects that meet the overall goals of the 2012 Coastal Master Plan. The design of these projects should include mitigation of existing structures as appropriate and should provide some level of assurance that future building inventory in that jurisdiction will be constructed in such a manner as to minimize risk of flooding.

### 3. Measures of Success

To determine if the nonstructural implementation strategy is achieving the desired results of reducing damages from flooding, the plan must identify measures of success. Because the real goal of reducing damages is difficult to measure (i.e., trying to measure damages that don't occur), surrogate measures must be identified. The intent of the nonstructural program is to reduce the risk to existing structures by protecting them from flooding and to reduce the number of new structures that are constructed with a risk of flooding. The following measures can be used to determine the relative success of the nonstructural strategy over the course of the planning period.

1. A decrease in severe repetitive loss structures (as defined by FEMA)
2. A decrease in repetitive loss structures (as defined by FEMA)
3. A decrease in vulnerable structures located within a high hazard area (e.g. coastal V zones and floodways)
4. A decrease in structures with finished floor elevations (as defined by the NFIP) below the Base Flood Elevation plus one foot of freeboard
5. An increase in the percentage of non-residential structures within a flood hazard area that are flood proofed

It will be important to collect baseline data early in order to measure success over the course of the planning period.

The 2012 Coastal Master Plan set an ambitious target for reducing flood risk for every area of the coast. Nonstructural physical and programmatic measures are a necessary and integral part of reaching that target and must be developed as primary and secondary lines of defense to address current and future building inventory at risk. To provide for a timely and effective implementation of both nonstructural physical and programmatic measures, it is appropriate to have a single entity such as the CPRA Board coordinate and act as a clearinghouse for all coastal nonstructural program activities. The CPRA Board can help ensure that nonstructural measures are implemented alongside the structural and restoration activities developed to achieve the goals of the 2012 Coastal Master Plan.